

AMENDMENTS TO THE CLAIMS

1-7. (Canceled)

8. **(Currently amended)** A process for producing a β -hydroxyhydroperoxide compound or a carbonyl compound, which comprises reacting an olefin with hydrogen peroxide in the pH range of 0 or more and less than 2 in the presence of a metal catalyst obtained by contacting

(A) at least one metal or metal compound selected from

i) tungsten compounds composed of tungsten and an element of group IIIb, IVb, Vb, or VIb,

ii) molybdenum compounds composed of molybdenum and an element of group IIIb, IVb, Vb, or VIb, and

iii) tungsten metal and molybdenum metal;

(B) at least one compound selected from tertiary amine oxide compounds and nitrogen-containing aromatic N-oxide compounds;

(C) hydrogen peroxide; and

(D) a phosphate compound ~~compound~~ compound.

wherein the carbonyl compound is produced by oxidatively breaking a carbon-carbon bond of the olefin.

9. **(Currently amended)** A process for producing a carbonyl compound, which comprises reacting a primary ~~or secondary~~ alcohol with hydrogen peroxide in the presence of a metal catalyst obtained by contacting

- (A) at least one metal or metal compound selected from
- i) tungsten compounds composed of tungsten and an element of group IIIb, IVb, Vb, or VIb,
 - ii) molybdenum compounds composed of molybdenum and an element of group IIIb, IVb, Vb, or VIb, and
 - iii) tungsten metal and molybdenum metal;
- (B) at least one compound selected from tertiary amine oxide compounds and nitrogen-containing aromatic N-oxide compounds;
- (C) hydrogen peroxide; and
- (D) a phosphate ~~compound~~ compound,
- wherein the carbonyl compound is an aldehyde and the amount of hydrogen peroxide to be used is 0.9 to 1.5 moles per 1 mole of the primary alcohol.

10. (New) A process for producing a carbonyl compound, which comprises reacting a primary alcohol with hydrogen peroxide in the presence of a metal catalyst obtained by contacting (A) at least one metal or metal compound selected from
- i) tungsten compounds composed of tungsten and an element of group IIIb, IVb, Vb, or VIb,
 - ii) molybdenum compounds composed of molybdenum and an element of group IIIb, IVb, Vb, or VIb, and
 - iii) tungsten metal and molybdenum metal;
- (B) at least one compound selected from tertiary amine oxide compounds and nitrogen-containing aromatic N-oxide compounds;
- (C) hydrogen peroxide; and
- (D) a phosphate compound,

wherein the carbonyl compound is a carboxylic acid and the amount of hydrogen peroxide to be used is 1.5 moles or more per 1 mole of the primary alcohol.